Results of the Rumphius Biohistorical Expedition to Ambon (1990)

Part 9. The Nassariidae (Mollusca: Gastropoda)

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This paper lists all species of the family Nassariidae collected during the Rumphius Biohistorical Expedition to Ambon (1990). Altogether 47 species are reported, of which two, *Nassarius maccauslandi* and *N. rotundus*, are new for Indonesia. Four additional species from Ambon are known from collections in the Nationaal Natuurhistorisch Museum, Leiden and in the Zoological Museum, Amsterdam. Another additional species is mentioned by Adam & Leloup (1938). Five species of Nassariidae were described by Rumphius, of which four were found by the Rumphius Biohistorical Expedition.

Introduction

During the Rumphius Biohistorical Expedition to Ambon (Moluccas, Indonesia) a remarkably large collection of Nassariidae, comprising 47 species, was gathered. Out of 36 marine collecting stations, 29 yielded nassariids. The most speciose localities were Hutumuri (Stn 27: 18 species) and Wainitu (Stn 04: 17 species).

The majority of the material was collected on intertidal muddy and sandy flats, but many of the smaller species were found by sieving sediments at depths between 1 and 20 metres. For a narrative of the expedition, including a complete list of stations and short descriptions of all localities, see Strack (1993, 1998).

Apparently there is little difference in species composition between Ambon Bay localities and localities situated on the outer shores of the island. Species like *Hebra corticata, Nassarius crematus, N. livescens, N. olivaceus* and *N. sinusigerus* seem to be restricted to, or occur predominantly in Ambon Bay, whereas (sub)species such as *Nassarius arcularia arcularia, N. coronatus* and *N. semisulcatus* were only collected on Ambon's outer shores.

Two species, *N. maccauslandi* Cernohorsky, 1984, previously only known from the Fiji Islands, and *N. rotundus* (Melville & Standen, 1896) known from the Loyalty Islands and Torres Strait, are new to the fauna of Indonesia.

In our opinion the classification of the Nassariidae, especially the designation of different genera and/or subgenera, is in need of further study. At present it seems best to retain the genera *Hebra* and *Nassarius* and not to make use of subgeneric names.

All material listed in this report is stored in the collection of the Nationaal Natuurhistorisch Museum (formerly Rijksmuseum van Natuurlijke Historie: RMNH). Part of the material, not listed in this paper, was deposited in the reference collection of the Oceanographic Institute of LIPI (Ambon).

In addition to the material collected by the expedition, the Moluccan Nassariidae in the collections of the RMNH and the Zoological Museum, Amsterdam (ZMA) were studied. A list of species kept in these institutions, but not found during the expedition, is presented in table 1. Judging from the expedition material, the material in the collections of RMNH and ZMA, and literature records, at least 64 species occur in the Moluccas, of which 52 species are known from Ambon.

Table 1. List of species in RMNH and ZMA from the Moluccas, not found during the Rumphius Biohistorical Expedition. Material marked xx originates from Ambon. In the case of *N. dorsatus* and *N. smitsorum* recent records are necessary to confirm the occurrence of these species in Moluccan waters (Kool, 1990: 173).

	RMNH	ZMA
N. bifarius (Baird in Brenchley, 1873)		x
N. comptus (A. Adams, 1852)		x
N. concinnus (Powys, 1835)	xx	x
N. crenoliratus (A. Adams, 1852)	x	x
N. dorsatus (Röding, 1798)		x
N. elegantissimus Shuto, 1969		x
N. nodifer (Powys, 1835)	x	x
N. oneratus (Deshayes, 1863)		x
N. optimus (Sowerby, 1903)		x
N. papillosus (L., 1758)	xx	xx
N. pulvinaris (von Martens, 1881)		x
N. quadrasi (Hidalgo, 1904)		x
N. scalaris (A. Adams, 1852)	xx	
N. smitsorum Kool, 1990		x
N. stolatus (Gmelin, 1791)		x
N. sufflatus (Gould, 1860)	x	xx

In his report on the Nassariidae collected by the Siboga Expedition, Schepman (1911) listed 47 taxa, of which nine are now considered conspecific with other species included in that report. Of the remaining 38 species, eight were collected in the Moluccas, of which three originated from Ambon. All species from the Moluccas which were not found by the Rumphius Biohistorical Expedition are already included in table 1.

The Belgian expedition "Voyage aux Indes Orientales Néerlandaises, 1928-1929" collected 12 nassariid species (Adam & Leloup, 1938), of which one was found in Egypt. Out of the other 11 species two were collected in Ambon, of which one, *Nassa glabrata* A. Adams, 1853 [= *Nassarius vittatus* (A. Adams, 1853)], represents the only known Moluccan record traced by us.

The Nassariidae of Rumphius' Amboinsche Rariteitkamer

Rumphius (1705: 84, 91-92, 97) described five species of Nassariidae, of which four species were illustrated. Von Martens (1902) identified the molluscs described by Rumphius. As far as we could ascertain, most of his identifications of the Nassariidae were correct.

Chapter XV, V. Fimbriata laevis (kleine soort) (p.84): Although the description is rather short, we agree with Von Martens (1902 : 116) that this must be *Nassarius coronatus* (Bruguière, 1789). The Rumphius Biohistorical Expedition material yielded three specimens of this species.

Chapter XVIII, XI. Arcularia major (p. 91-92, pl. 27, fig. M): This is *Nassarius arcularia arcularia* (L., 1758), of which only two specimens were collected by the Rumphius Biohistorical Expedition. Von Martens (1902: 118) wrongly identified it as *Nassa arcularia* var. *rumphi* Deshayes [= *Nassarius arcularia plicatus* (Röding, 1798)]. We agree with Cernohorsky (1984: 58) that this subspecies only occurs in the western Indian Ocean. However, in the Schepman (ZMA) collection there are a few lots from Ambon, formerly labeled as *N. arcularia* var. *rumphi*. These specimens differ in having grooves on the upper and middle part of the body whorl. Rumphius' illustration also shows these grooves, but they are lacking in both specimens found by the expedition.

Chapter XVIII, XII. Arcularia minor (p. 92, pl. 28, fig. N): Rumphius adopted the name Arcularia from the Malayan name of this species: Bia Totombo. The name Bia is Ambonese for shell, the name Totombo was given to boxes or baskets made of leaves of certain trees and decorated with rows of these shells. Arcula is Rumphius' Latin translation of box or basket.

Von Martens (1902: 118) suggests that this species is *Nassa thersitus* Brug. [= *Nassarius pullus* (L., 1758)]. We agree with his identification. The only contradiction in Rumphius' description is the size of the shell: as big as "a little finger's nail". *N. pullus* is usually about twice as long. But when he indicates the size of *N. arcularia arcularia* as "big as a thumb's nail" the relative size of the two species is correct. *N. pullus* was found by the expedition in four localities, and was common in two of these (stations 04 and 14).

Chapter XIX, XIV. Buccinum granulatum rotundum (p. 97, pl. 29, fig. M): Von Martens (1902: 119) identified the figured specimen as *Nassa papillosus* L. [= *Nassarius papillosus* (L., 1758)]. We can confirm this identification, as the "round beads" in Rumphius' description are one of the most distinctive characters of this species. *N. papillosus* was not found during the expedition, but material from Ambon is present in RMNH and ZMA collections.

Chapter XIX, XVII. Buccinum lineatum (P. 97, pl. 29, fig. P): Both Von Martens (1902: 119) and Schepman (1911: 316) correctly identified this species as *Nassa glans*

(L.) [= *Nassarius glans glans* (L., 1758)]. In his description Rumphius mentioned that this species has black spiral lines. Although these lines can be dark brown, we have never observed specimens with black lines. The only specimen collected by the expedition has brown lines.

In his description Rumphius added the following remark: "In her flesh she has also that small, venomous spine, like the Pauskronen [= *Mitra papalis* (L., 1758)], for which one must take care, so that it won't hurt anyone's hand". As far as is known most Nassariidae are omnivores and facultative scavengers (Bandel, 1984: 142) and are not active predators equipped with venomous harpoon-like teeth like Conidae or Terebridae. In this case Rumphius seems to be mistaken.

Nassariidae collected by the expedition (1990)

Each station number is followed by the number of collected specimens (in parentheses). The abbreviation L indicates that one or more living specimens were taken.

NASSARIIDAE Iredale, 1916
NASSARIINAE Iredale, 1916

Hebra H. & A. Adams, 1853

Hebra corticata (A. Adams, 1852)

Material.— Stn 02 (7 L); Stn 04 (86 L); Stn 06 (2); Stn 09 (1); Stn 14 (50 L); Stn 36 (1 L.); Stn 37 (1).

Remarks.— Only found in the Ambon and Baguala Bays, in muddy areas in the intertidal zone.

Hebra horrida (Dunker, 1847)

Material.— Stn 03 (1); Stn 04 (1); Stn 07 (1); Stn 17 (2); Stn 20 (2); Stn 27 (24 L); Stn 36 (1).

Remarks.— Intertidal, on sandy mud flats with pools.

Hebra subspinosa (Dunker, 1847)

Material.— Stn 03 (20 L); Stn 04 (204 L); Stn 07 (62 L); Stn 09 (2); Stn 18 (21); Stn 21 (28 L); Stn 27 (225 L); Stn 36 (2 L); Stn 37 (3).

Remarks.— In the lower and middle intertidal zone. Ambon was designated the type locality by Cernohorsky (1984: 204).

Nassarius Duméril, 1806

Nassarius acuticostus (Montrouzier in Souverbie & Montrouzier, 1864)

Material.— Stn 03 (3 L); Stn 05 (1); Stn 27 (21 L); Stn 30 (1 L); Stn S1 (1).

Remarks.— Found at depths up to 1.5 m.

Nassarius agapetus (Watson, 1822)
(fig. 1)

Material.— Stn 40 (1).

Nassarius albescens (Dunker, 1846)

Material.— Stn 03 (1); Stn 04 (2); Stn 05 (1 L); Stn 18 (5 L); Stn 20 (4); Stn 21 (1); Stn 23 (4 L); Stn 26 (2); Stn 27 (4); Stn 39 (1 L); Stn S1 (1).

Remarks.— See for a discussion on the specific rank of this taxon Dekker & Kool (1999).

Nassarius arcularia arcularia (Linnaeus, 1758)

Material.— Stn 17 (2).

Remarks.— Remarkably, only two specimens of this rather common intertidal and shallow water species were collected.

Nassarius bimaculosus (A. Adams, 1852)

Material.— Stn 04 (2 L); Stn 07 (2 L); Stn 14 (15 L); Stn 20 (5 L); Stn 21 (4 L); Stn 27 (1); Stn 30 (2 L); Stn S1 (1).

Remarks.— An intertidal species, often found in tidal pools.

Nassarius callospira (A. Adams, 1852)
(figs 2-3)

Material.— Stn. 03 (1L), Stn 04 (1); Stn 05 (1); Stn 21 (2 L); Stn 26 (3 L); Stn 30 (2 L).

Remarks.— The living specimens were found in sand at a depth of 0.5-1.5 m.

Nassarius camelus (von Martens, 1897)

Material.— Stn 07 (5 L); Stn 20 (1); Stn 27 (1); Stn 34 (1).

Remarks.— Living specimens were found in the intertidal zone.

Nassarius castus (Gould, 1850)

Material.— Stn 04 (1); Stn 29 (1 L).

Remarks.— The living specimen was found at a depth of 8 - 12 m.

Nassarius cinctellus (Gould, 1850)
(figs 4-5)

Material.— Stn 03 (1); Stn 04 (2); Stn 05 (14 L); Stn 18 (1); Stn 21 (1); Stn 23 (16 L); Stn 27 (1); Stn 30 (9); Stn 34 (2); Stn 37 (5); Stn 39 (6 L); Stn 44 (2).

Remarks.— According to Cernohorsky (1984: 110) this is an intertidal species. In Ambon, living specimens were also found in sand at depths up to 20 m.

Nassarius conoidalis (Deshayes in Bélanger, 1832)
(fig. 6)

Material.— Stn 04 (1).

Remarks.— Only one specimen was found.

Nassarius coronatus (Bruguière, 1789)

Material.— Stn 16 (2 L); Stn 21 (1).

Nassarius crematus (Hinds, 1844)

Material.— Stn 28 (1 L); Stn 32 (3 L); Stn 33 (2).

Remarks.— *N. crematus* was only found in the inner Ambon Bay. Living specimens were dredged at depths between 10 and 17 m.

Nassarius crenoliratus (A. Adams, 1852)

Material.— Stn 04 (19 L); Stn 07 (1); Stn 36 (6 L).

Remarks.— Most living specimens were found at low water mark.

Nassarius crenulicostatus (Shuto, 1969)
(figs 7-8)

Material.— Stn 05 (5); Stn 23 (3); Stn 30 (1); Stn 37 (1); Stn 39 (1); Ambon, Hitu, 1 km W of Hila, 21/26.xi.1997, H.L. Strack leg.

Remarks.— Specimens from some localities differ from *N. pauperus* only in number and shape of the embryonic whorls (protoconch). According to Cernohorsky (1984: 179) these specimens, although living together with *N. pauperus,* belong to the separate species *N. crenulicostatus* .

Nassarius distortus (A. Adams, 1852)
(fig. 9)

Material.— Stn 03 (2 L); Stn 04 (1); Stn 20 (1); Stn 23 (1 L); Stn 27 (1); Saparua, Booi (2).

Nassarius echinatus (A. Adams, 1852)
(fig. 10)

Material.— Stn 23 (2).

Remarks.— Two dead specimens were dredged at a depth of 15 m.

Nassarius ecstilbus (Melvill & Standen, 1896)
(fig. 11)

Material.— Stn 05 (1 L); Stn 23 (1); Stn 30 (2 L); Stn 39 (1 L).

Remarks.— Living specimens of this little known and uncommon species were found in sand between 6 and 9 m depth.

Nassarius fretorum (Melvill & Standen, 1899)
(fig. 12)

Material.— Stn 21 (1).

Remarks.— A single juvenile specimen was found at a depth of 20 m.

Nassarius glans glans (Linnaeus, 1758)

Material.— Stn 05 (1).

Nassarius globosus (Quoy & Gaimard, 1833)

Material.— Stn 04 (79 L); Stn 06 (4 L); Stn 07 (17 L); Stn 09 (1); Stn 21 (2); Stn 27 (34 L); Stn 36 (78 L).

Remarks.— The expedition collected this species in the intertidal zone and in very shallow water.

Nassarius granifer (Kiener, 1834)

Material.— Stn 30 (1 L).

Remarks.— A single living specimen was found at a depth of 5-7 m.

Nassarius haldemanni (Dunker, 1847)
(fig. 13)

Material.— Stn 21 (1).

Remarks.— This is a rather rare species, already known from the Moluccas, Kei Islands (Cernohorsky, 1984: 146).

Nassarius labiatus (A. Adams, 1853)
(fig. 14)

Material.— Stn 37 (1).

Remarks.— This juvenile specimen was found at a depth of 1 m.

Nassarius limnaeiformis (Dunker, 1847)

Material.— Stn 21 (2); Stn 27 (3); Stn 37 (1).

Nassarius livescens (Philippi, 1849)

Material.— Stn 01 (1); Stn 04 (8 L); Stn 07 (1 L).

Remarks.— This species was only found in Ambon Bay, on sandy and muddy bottoms in the intertidal zone.

Nassarius luridus (Gould, 1850)

Material.— Stn 04 (5); Stn 14 (3 L); Stn 20 (1); Stn 27 (7); Stn 36 (37 L).

Remarks.— A rather common intertidal species.

Nassarius maccauslandi Cernohorsky, 1984
(fig. 15)

Material.— Stn 05 (10 L); Stn 31 (1).

Remarks.— One living specimen (Stn 05) was sieved from sand at a depth of 1 m. The dead specimen of Stn 31 was found in coarse sand at 15 m depth.

Cernohorsky (1984: 72) reports that *N. maccauslandi* is only known from Suva, Fiji Islands, but it appears to have a much wider distribution. Apart from the material found by the Rumphius Biohistorical Expedition in Ambon, material from Manokwari, Irian Jaya is present in the private collection of Mr D. Smits (Woudenberg, The Netherlands) and recently material was collected in Bali, Indonesia and in Bohol, Philippines (colln H.H. Kool).

Nassarius margaritifer (Dunker, 1847)

Material.— Stn 04 (1); Stn 27 (4 L).

Remarks.— Living specimens were found just below low water mark.

Nassarius moestus (Hinds, 1844)
(fig. 16)

Material.— Stn 05 (1); Stn 18 (3 L); Stn 26 (3 L); Stn 27 (9).

Remarks.— An intertidal species, scarcely represented in collections.

Nassarius moolenbeeki Kool, 1995
(figs 17-18)

Material.— Stn 21 (1).

Remarks.— This species was recently described (Kool, 1995). The figured specimen is a paratype.

Nassarius multicostatus (A. Adams, 1852)

Material.— Stn 05 (6 L); Stn 23 (3 L); Stn 37 (1 L).

Remarks.— This species was found on sandy bottoms from low water mark down to a depth of 6 m.

Nassarius olivaceus (Bruguière, 1789)

Material.— Stn 04 (7 L); Stn 14 (27 L).

Remarks.— Exclusively found on mud flats.

Nassarius pauperus (Gould, 1850)
(fig. 19)

Material.— Stn 05 (2); Stn 17 (2); Stn 20 (1); St 21 (2); Stn 23 (3); Stn 26 (4); Stn 27 (1); Stn 34 (4 L); Stn 39 (3L); Stn 44 (1).

Remarks.— The living specimens were found intertidally.

Nassarius pullus (Linnaeus, 1758)

Material.— Stn 04 (38 L); Stn 14 (39 L); Stn 27 (8 L); Stn 36 (1).

Remarks.— Living specimens were found in the intertidal zone.

Nassarius pupinoides (Reeve, 1853)
(fig. 20)

Material.— Stn 27 (1).

Remarks.— This species is seldom represented in collections. Only one dead specimen was found.

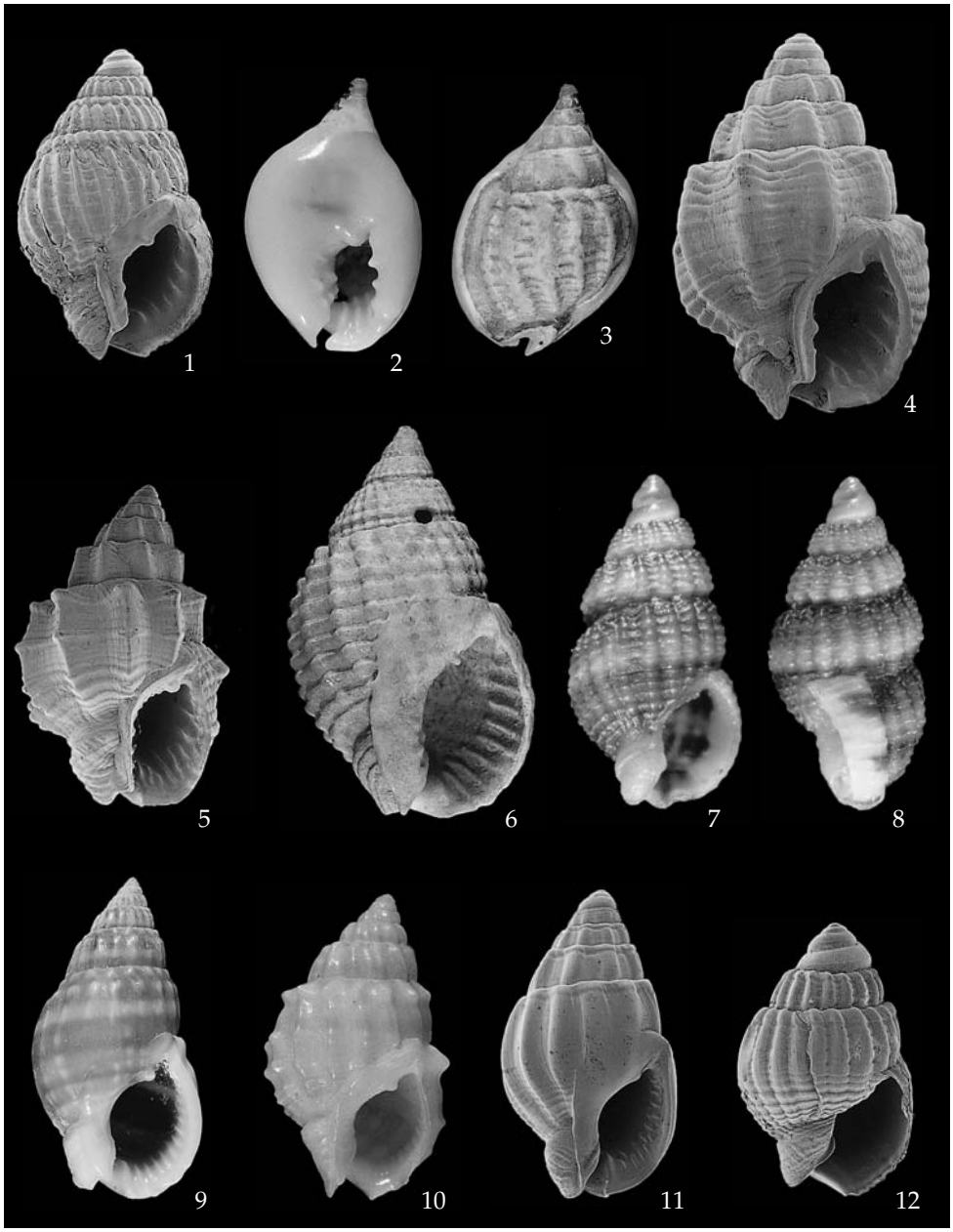

Fig. 1, *Nassarius agapetus* (Watson), Stn 41, 5.9 × 3.4 mm; figs 2-3, *N. callospira* (A. Adams), Stn 03, 9 × 5.8 mm; figs 4-5, *N. cinctellus* (Gould): 4, smooth form, Stn 37, 5.4 × 3.4 mm: 5, spiny form, Stn 30, 9 × 5.6 mm; fig. 6, *N. conoidalis* (Deshayes in Bélanger), Stn 04, 14.9 × 8.7 mm; figs 7-8, *N. crenulicostatus* (Shuto), Ambon, Hitu, 1 km W of Hila, 21/26.xi.1997, H.L. Strack leg., 6 × 3 mm; fig. 9, *N. distortus* (A. Adams), Saparua, Booi; fig. 10, *N. echinatus* (A. Adams), Stn 23, 11.2 × 7 mm; fig. 11, *N. ecstilbus* (Melvill & Standen), Stn 23, 5.4 × 3.4 mm; fig. 12, *N. fretorum* (Melvill & Standen), juvenile specimen, Stn 21, 3.8 × 2.4 mm.

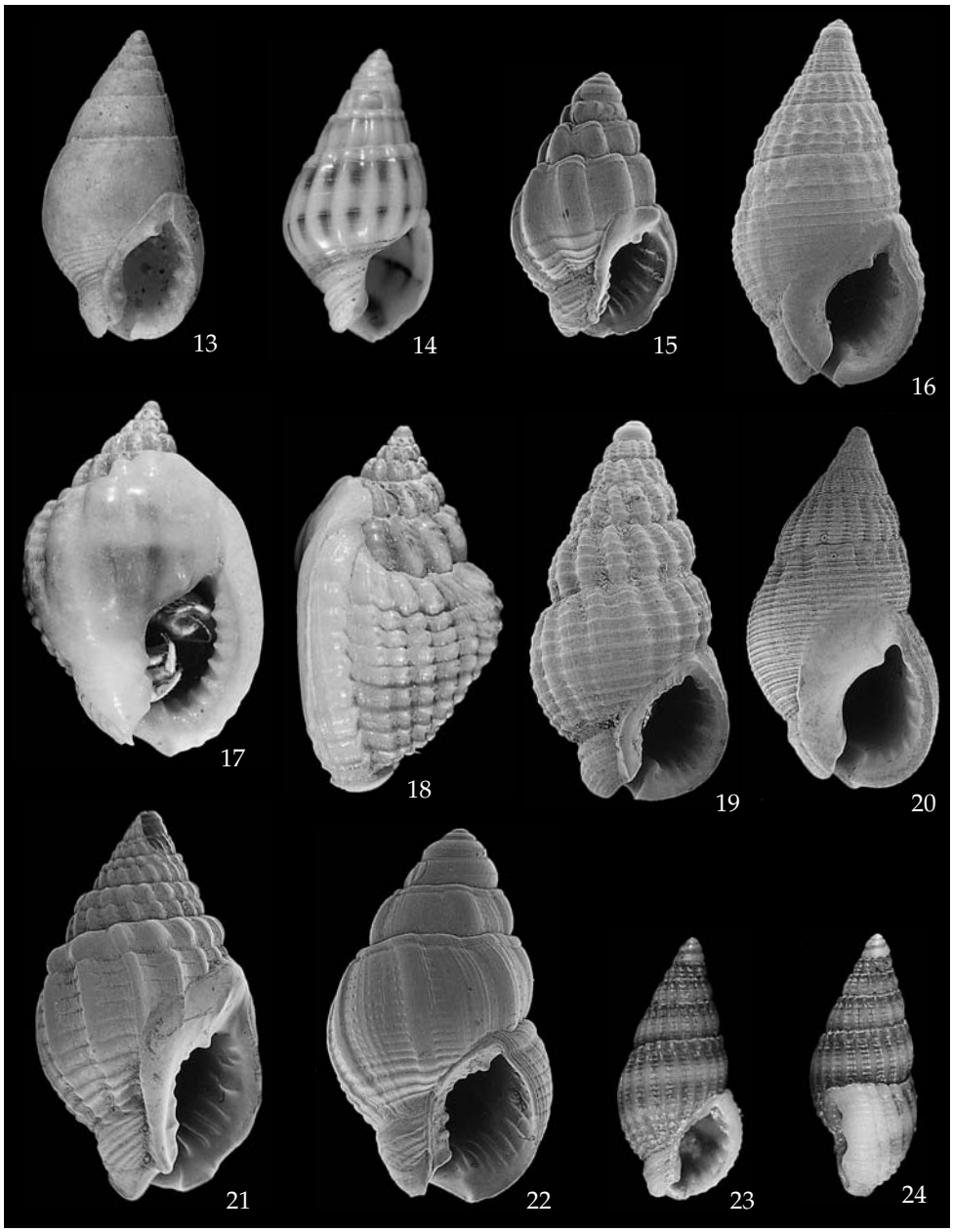

Fig. 13, *N. haldemanni* (Dunker), Stn 21, 13.1 × 6.8 mm; fig. 14, *N. labiatus* (A. Adams), juvenile specimen, Stn 37, 8.2 × 4.1 mm; fig. 15, *N. maccauslandi* Cernohorsky, Stn 05, 3.8 × 2.3 mm; fig. 16, *N. moestus* (Hinds), Stn 05, 7.2 × 3.6 mm; fig. 17-18, *N. moolenbeeki* Kool, paratype, Stn 21, 11.8 × 7.7 mm; fig. 19, *N. pauperus* (Gould), Stn 26, 7.4 × 3.8 mm; fig. 20, *N. pupinoides* (Reeve), Stn 27, 10 × 5.1 mm; fig. 21, *N. sinusigerus* (A. Adams), Stn 29, 11.4 × 6 mm; fig. 22, *N. tabescens* (Marrat), Stn 39, 5.3 × 3.1 mm; figs 23-24, *N.* spec., Stn 41, 7.3 × 3.2 mm.

Nassarius reeveanus (Dunker, 1847)

Material.— Stn 09 (1); Stn 23 (1); Stn 26 (2 L); Stn 27 (4); Stn 37 (6 L); Stn 39 (3).

Remarks.— Living specimens were found in the intertidal zone and up to depths of 5 m.

Nassarius rotundus (Melvill & Standen, 1896)

Material.— Stn 39 (1).

Remarks.— According to Cernohorsky (1984: 179) this species is rare and only known from the type locality (Lifu, Loyalty Islands) and Torres Straits, Australia. It is here reported for the first time from Indonesia. In addition to the, rather damaged, specimen collected by the Rumphius Biohistorical Expedition, material from Manokwari, Irian Jaya is present in the private collection of the senior author.

Nassarius semisulcatus (Rousseau, 1854)

Material.— Stn 17 (9); Stn 27 (7 L).

Remarks.— Living specimens were found just below low water mark.

Nassarius sinusigerus (A. Adams, 1852)
(fig. 21)

Material.— Stn 01 (2); Stn 23 (2); Stn 28 (29 L); Stn 29 (145 L); Stn 32 (120 L); Stn 33 (69 L).

Remarks.— Remarkably large populations of this species occur in the inner Ambon Bay, where specimens were dredged at depths up to 23 m.

Nassarius siquijorensis (A. Adams, 1852)

Material.— Stn 29 (1 L); Stn 36 (2).

Remarks.— The living specimen was found at 8-12 m depth.

Nassarius splendidulus (Dunker, 1846)

Material.— Stn 30 (1 L).

Remarks.— Only one living juvenile specimen was found between 0.5 and 1.5 m depth.

Nassarius tabescens (Marrat, 1880)
(fig. 22)

Material.— Stn 05 (15); Stn 23 (15 L); Stn 31 (1); St 34 (2); Stn 37 (1 L); Stn 39 (6 L).

Remarks.— Most specimens were sieved from sand between 7 and 10 m depth. Although *N. tabescens* is scarcely represented in museum collections, it appears to be fairly common around Ambon.

Nassarius venustus (Dunker, 1847)

Material.— Stn 26 (1); Stn 27 (5); Stn 30 (1 L); Stn 37 (2).

Remarks.— The living specimen was found at a depth of 0.5 - 1.5 m.

Nassarius spec.
(Figs 23-24)

Material.— Stn 41 (1).

Description.— Length 7.3 mm, width 3.2 mm, slender elongate, whorls slightly convex. Spire high, 3 embryonic whorls, of which the third is carinated. Teleoconch of 4 1/2 whorls. Suture distinct.

Sculptured with close-set, rounded axial ribs, about 8 on the first postembryonic whorl, gradually increasing to 17 on the body whorl. Subsutural overriding spiral cord, resulting in small nodules on the axial ribs. Two more overriding spiral cords on the first postembryonic whorl, in later whorls to 5 spiral threads only between the axial ribs. On the body whorl 9 of these spiral threads and 4 nodulose basal cords.

Aperture wide, roundly ovate, about 1/3 of the total length. Outer lip thick, strongly variced, interior with 7 elongate denticles, last anterior denticle the largest. Anal canal distinct. Columella with a distinctly bordered columellar callus and irregular lirae.

Colour of this dead collected specimen brownish white, with brown bands, one on the postembryonic whorls, two on the penultimate and three on the body whorl, which banding is showing through in the aperture; outer lip white.

Operculum and radula unknown.

Remarks.— This specimen could not be identified. It is more conical and elongate than species from Indonesia and adjacent regions of about the same size and appearance, like *N. pauperus* (Gould, 1850), *N. moestus* (Hinds, 1844) and *N. pupinoides* (Reeve, 1853). As only one empty shell was available we thought it better not to erect a new taxon, but to give a detailed description.

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Rumphius, G.E., 1705. D'Amboinsche Rariteitkamer, Behelzende eene Beschrijvinge van allerhande zoo weeke als harde Schaalvischen, te weeten raare Krabben, Kreeften, en diergelijke Zeedieren, als mede allerhande Hoorntjes en Schulpen, die men in d'Amboinsche Zee vindt: Daar beneven zommige Mineraalen, Gesteenten, en soorten van Aarde, die in d'Amboinsche, en zommige omleggende Eilanden gevonden worden: [1-28], 1-340, [1-43], pls 1-60.

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